

CHAPTER VII

The Zoelly Type Turbine

The Zoelly turbine as built by the original makers, Messrs. Escher, Wyss, & Co., of Zurich, can be taken as a representative pure multi-pressure stage turbine, which in its general principles has held a leading position in all countries.

A number of British manufacturers have adopted this type under licence, and the following illustrations refer to machines of the Zoelly type as built by Messrs. The English Electric Company. The designs shown differ in some important respects from Messrs. Escher, Wyss, & Co.'s practice.

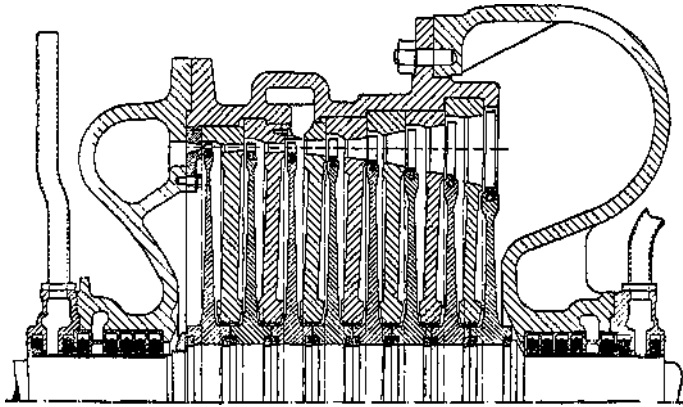


Fig. 23.—Simple Impulse Type Zoelly Turbine

Fig. 23 illustrates a Zoelly turbine where the pure pressure stage principle is retained. The question of output, steam, and speed conditions determine what the form of the first stage shall be.

The rotor is composed of a high-quality steel shaft on which are mounted the steel discs carrying the impulse buckets or blading. These discs are separated from one another by a series of diaphragms carrying the stationary blades or nozzles. These diaphragms divide the casing into pressure stages.

The high-pressure end of the casing carrying the steam belt and first nozzles is made of cast steel, as the high pressures and temperatures occur only in this part of the machine.

Steam-sealed glands are fitted between the casing and shaft at either end.

The rotor is supported on pedestal bearings with pressure-fed lubrication. The axial adjustment between the wheels and diaphragms is determined by the thrust block mounted on the end of the shaft. The

exhaust-end pedestal
is made large enough to take the bearing of the driven
unit.

The admission of the steam is controlled by an oil-relay
governor which
uses the same oil as the main bearings.